

From: Gfredlee <Gfredlee@aol.com>
Date: Mon, 19 Jan 1998 16:00:05 EST
To: jgwill@dcon.davis.ca.us
Cc: lwintern@water.ca.gov, jheath@water.ca.gov,
rwoodard@goldeneye.water.ca.gov
Subject: Use of Adaptive Management in the CALFED Water Quality Management Program
Organization: AOL (<http://www.aol.com>)
X-Mailer: Inet_Mail_Out (IMOV11)

G. Fred Lee & Associates

27298 E. El Macero Dr.
El Macero, California 95618-1005
Tel. (530) 753-9630 • Fax (530) 753-9956
e-mail gfredlee@aol.com

web site: <http://members.aol.com/gfredlee/gfl.htm>

Please note the new area code for telephone and fax has been changed to 530

Via e-mail jgwill@dcon.davis.ca.us

January 19, 1998

John Williams
875 Linden Lane
Davis, CA 95616

Dear John:

I want to follow up on the adaptive management session that you organized to suggest that there is need to have a follow-on discussion on how adaptive management could work for chemical constituents that are potential pollutants as well as for chemical constituents that are known pollutants in the Delta system. I have been following the CALFED Water Quality Program (WQP) closely now for over a year. Originally, the CALFED Water Quality Technical Group selected a list of constituents of concern. CALFED management then proceeded to establish critical concentrations of constituents of concern to be the remediation goals for "fixing" the water quality aspects of the Delta. I also understood from the original WQP information that load response models were being formulated which would enable CALFED to select the amount of control for each of the constituents of concern that was necessary to achieve the CALFED remediation objectives. A number of individuals, including myself, have commented on the lack of technical validity of this approach. This approach can readily lead to massive expenditures for control of the input of constituents which have little or no impact on the beneficial uses of the Delta and its resources.

For example, repeatedly CALFED staff and their consultants have made comments about the significance of various heavy metals in the Delta, when, in fact, there is no evidence that many of these heavy metals, such as copper, are causing water quality problems in the Delta. In addition, there is substantial evidence that shows that these constituents are not in toxic available forms and therefore are inert in the Delta.

With respect to urban and industrial stormwater runoff, the original CALFED Water Quality Program called for a large-scale construction program involving building detention basins to remove particulate metals. Those responsible for formulating that part of the program ignored the fact that in 1995 the US EPA determined that many of the particulate metals in ambient waters do not need to be controlled because they are non-toxic and in an inert form.

At several meetings the CALFED Water Quality Program managers have repeatedly mentioned that adaptive management would be the approach that is followed in developing and implementing the Water Quality Program. Based on the presentation that was made in your session on adaptive management I can readily now see how for fisheries management as a function of flow into the Delta and diversions, adaptive management is an appropriate approach. It is not clear to me, however, how adaptive management addresses such issues as copper in the Delta to determine whether the copper that is present in Delta waters that exceeds US EPA water quality criteria and state of California

water quality objectives when they are eventually adopted based on the California Toxics Rule will be implemented. Similarly, how will adaptive management be implemented for the mercury problem where there is, at least in the upper parts of San Francisco Bay and the Bay as a whole, a real water quality problem due to mercury because of its excessive bioaccumulation in fish tissue causing the fish to be a health hazard to the public who consume them?

Another area of concern is the CALFED Water Quality Program's continued use of Long and Morgan co-occurrence-based "sediment quality" values as an objective for sediment clean-up/ remediation in the Delta. It is well known that Long and Morgan co-occurrence-based sediment chemical concentration values are technically invalid. It has been demonstrated that one can get the same reliability in predicting sediment toxicity based on Long and Morgan co-occurrence values by flipping a coin, i.e. Long and Morgan values are correct about 50% of the time for an unbiased set of data. How can adaptive management be used to address the sediment quality issues in the Delta, especially in light of the fact that CALFED management is proceeding down a technically invalid path for defining these problems?

Another problem that needs to be addressed by CALFED is the aquatic life toxicity that occurs in the Delta associated with pesticide use. There are aquatic life toxicity pulses that pass through the Delta each winter and at other times in at least parts of the Delta. How will adaptive management be used to address this type of problem where the issue of concern is whether there is a real water quality use impairment that significantly adversely impacts Delta water quality and its resources? While adaptive management is, as you discussed, designed to address the uncertainty in management alternatives, at least with respect to many of the water quality issues, we are nowhere near beginning to discuss in a meaningful way management alternatives. We are at the point of trying to define whether there is a problem or not for many of the constituents of concern selected by CALFED.

Originally, as formulated a year ago, the CALFED Water Quality Technical Program was designed to move ahead and solve water quality problems without having properly defined the real water quality problems in the Delta. As you know, there is considerable appropriate controversy as to what real water quality problems exist in the Delta outside of the salinity and THM precursor problems that affect water supplies that use the Delta waters as a raw water source. Whether heavy metals, pesticides, other organics, urban and industrial stormwater runoff, mine drainage, current mercury inputs, etc. are causing real water quality - use impairments of the Delta and its resources is largely unknown.

When the CALFED Water Quality Program was first released about a year ago, a number of individuals who are familiar with water quality issues pointed out that the Water Quality Program had been incorrectly formulated. While there has been an extensive so-called water quality monitoring program in the Delta, this Program has not focused on defining water quality problems; it has focused on gathering water quality characteristic data. Thus far, there has been no directed effort to determine what the massive database that exists on water quality parameters means in terms of the true water quality characteristics of the Delta. It was for this reason that a number of us suggested a year ago to CALFED management that the first step in a water quality management program should be focused on developing a proper monitoring program that is specifically designed to address determining what real water quality problems exist within the Delta that are due to chemical constituents and pathogenic organisms that are inputted into the Delta, either directly, or through its tributaries. Initially, several individuals submitted proposals to utilize CALFED funds for this monitoring program. As best as I can determine, none of them were supported and, in fact, CALFED management informed us that monitoring of this type was inappropriate for early funding of CALFED Water Quality Program activities. A serious mistake would be made by CALFED if funds are made available to solve water quality problems before they have been defined. Ultimately, it may be possible to use adaptive management in the Water Quality Program, although it is not clear at this time how this can be done.

At a Water Quality Program public meeting held this past fall, mixed signals were sent with respect to how CALFED plans to address water quality issues. A considerable part of the program was devoted to the California Toxics Rule and the changes that occur in the critical concentrations for several parameters of concern associated with the eventual adoption of this Rule. This approach is more of the focusing on a single chemical value approach for establishing critical concentrations of constituents of concern that can be used in the mechanical modeling approach that was originally proposed for establishing allowed discharges to the Delta and its tributaries to achieve the California Toxics Rule concentrations within the Delta or within its tributaries at critical locations that impact Delta resources. However, when I asked at the end of the meeting after a summary presentation on the CMARP monitoring program, how the Water Quality Program is going to address the issues such as mercury, organophosphate pesticides, etc., the group was told by R. Woodard that this would be through the CMARP program. This could be interpreted to mean that CALFED Water Quality Program management has abandoned its original approaches and is now focusing on defining real water quality problems and appropriate constituents of concern as part of formulating the CALFED Water Quality Program. It remains to be seen whether this interpretation is appropriate. Hopefully, these issues will be clarified at the next public meeting of the Water Quality Program.

I feel that CALFED should hold a meeting specifically devoted to how adaptive management would be used in the CALFED water quality evaluation and management program in order to be certain that a common definition of adaptive management is developed. Further, an issue that needs to be addressed is whether the monitoring programs are going to have to be done before a credible water quality management program in CALFED can be developed. A properly developed adaptive management program has special monitoring requirements. It is important that the monitoring programs are conducted in such a way as to provide the information needed for the adaptive management program. Addressing these issues now would be valuable in helping to formulate the water quality monitoring programs that will have to be conducted to get the CALFED Water Quality Program to focus on real water quality use impairments within the Delta and its tributaries in a technically valid, cost-effective manner.

It is not clear to me how many of those within CALFED and the Water Quality Technical Group have obtained a copy of your "Notes on Adaptive Management" that was made available at the CALFED Adaptive Management session that was held last fall. I feel that all within CALFED and interested in CALFED Water Quality Program activities should review these notes as a starting point for beginning to address how adaptive management could possibly be used within the CALFED Water Quality Management Program. I want to thank you for sending me extra copies of these notes. I wish to indicate to those who receive a copy of these comments that I will make available a copy of these notes to anyone who is interested.

If you have other materials on adaptive management that would help address the issues discussed herein, please bring them to my attention. If you or others have questions about these comments, please contact me.

Sincerely yours,

G. Fred Lee

G. Fred Lee, PhD, DEE

Copy to: R. Woodard
L. Snow
J. Heath
L. Winternitz
GFL:oh